

REMARKS

The non-final Office Action mailed January 17, 2007, has been received and reviewed. As of the January 17, 2007 Office Action, Claims 1-14 were pending and presently stand rejected. Applicant has amended Claims 1-12 and 14, herein. As of this THIRD AMENDMENT AND RESPONSE, Claims 1-14 are believed to be in condition for allowance and Applicant respectfully requests reconsideration of the application as amended herein.

Substance of Interview

An Examiner Interview was conducted telephonically, April 10, 2007 between Applicant's counsel, Paul C. Oestreich, and Examiner Rhonda L. Murphy. A draft amendment third amendment and response was provided to Examiner Murphy in advance of the Examiner Interview. The proposed claim amendments in the draft were the same as those provided herein.

Claim Objections

The Examiner has objected to Claims 1, 7, 11 and 14 because of the use of the term "configured for". In accordance with the Examiner's suggestion, the term "configured for" is a positive limitation as used in Claims 1, 7, 11 and 14.

35 U.S.C. § 112, ¶ 2 Rejections

The Examiner has rejected Claims 1-14 under 35 U.S.C. § 112, ¶ 2 as failing to comply with the written description requirement. Specifically, the Examiner takes issue with the negative limitation "unmodulated", recited in Claims 1, 7, 11 and 14. Applicant has amended Claims 1, 7, 11 and 14 to remove the "unmodulated" limitation because it is overly limiting of the inventions recited in the claims and is not necessary for patentability.

35 U.S.C. § 103(a) Obviousness Rejections

M.P.E.P. 706.02(j) sets forth the standard for a Section 103(a) rejection:

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure. *In re Vaeck*, 947 F.2d 488, 20 USPQ2d 1438 (Fed. Cir. 1991).

Obviousness Rejection Based on U.S. Patent No. 4,293,740 to Gibb et al. in view of U.S. Patent No. 4,996,709 to Heep et al.

The Examiner has rejected Claims 1-14 under 35 U.S.C. § 103(a) as being unpatentable over Gibb et al. in view of Heep et al. Gibb et al. teaches an analog intercom system for transmitting analog voice signals using "d.c." or digital control signals. See, e.g., Col. 2:5 to Col. 3:2. Heep et al. discloses an intercom telephone that transmits analog voice signals on two or more frequency modulated (FM) channels over a wire pair of a local telephone network. See, e.g., Abstract. However, neither Gibb et al. nor Heep et al. appear to disclose transmission of digital media network signals. Rather, they both appear to transmit analog audio signals.

Historically, intercom systems have been built on analog matrix switching technology, meaning there is a Master Station (or distribution amplifier) that contains a central switching mechanism that takes a microphone signal from a local or remote station, amplifies it, and distributes it out to other remote station speakers. The problem with this method is that all control must take place at the Master Station. This means that a person at a remote station cannot select which station they want to talk to.

Newer intercoms have tried to overcome this problem by either adding switching control via keypads at remote stations (similar to telephone switching networks) or by implementing an analog bus architecture with a digital control bus to arbitrate analog signal transmission between stations, such as those disclosed in the Gibb et al. and Heep

et al. references. Although both methods allow remote station selective call, both methods are still limited in scalability. The remote switching network has limited input/output ports and the analog bus has limited station connectivity due to the impedance drop caused by multiple stations being connected in parallel on the bus.

It is also important to note that the motive for using bus arbitration for any analog transmission method is strictly to provide discrete communication between two or more stations and not to prevent the mixing of signals. It is well understood by those knowledgeable in the art that analog signals can be mixed or summed together without "corruption" of the signal. This is not the case though for digital signals where any mixing of signals on a bus will cause corruption of the signal and deem it useless. It is also known by those who are knowledgeable in the art that digital network transmissions using "packetized" arbitration (like Ethernet, Token Ring, etc.) do not use a separate digital control bus.

In addition, by using analog signal transmissions, any noise induced on the wire (from EMI, power supply hum, etc.) between intercom stations is added to the analog signal and amplified at the intercom speaker, regardless of the system topology. Designers of intercoms try to overcome this by adopting a balanced transmission scheme between the microphone and the amplifier, which not only complicates the design, but does little to actually solve the problem. Analog also means that impedance matching between the amplifier, the speaker, and the interconnecting wire must be a primary consideration which affects power efficiency, scalability, EMI susceptibility, fidelity, etc.

Another problem with analog technology in intercoms is the limited music capabilities. Although manufacturers have added radio tuners and even CD players to analog intercoms, the music is still transmitted to remote stations using analog transmission technology. Analog audio transmission requires a unique pair of wires for every audio channel, e.g., left and right stereo require two pairs of wire, and even more for surround sound. Therefore, music transmitted through intercom systems traditionally has always been mono because of the limited number of wires interconnecting intercom stations.

Music distribution systems have similar problems to those of intercoms due to the same analog audio signal transmission technology. Music distribution systems require all sources to be local to the distribution amplifier and distributed throughout the house via speaker level wiring. Manufacturers highly discourage remote music (line level) sources wired directly back to the distribution amplifier due to susceptibility to noise and other signal degradation as mentioned before.

Although methods can be implemented to minimize the inherent effects caused by analog transmission technology, they are expensive and prohibitive to wide consumer adoption. Digital technologies enable an entirely separate method of media transmission that is not limited by scalability or in the number of discrete audio/video channels. In addition, audio/video signals encoded digitally are not affected by EMI interference, signal degradation, or lack of fidelity.

Advances in digital audio technology (iPods, satellite radio, portable CD players, etc.) are providing consumers with increased sound quality, portability, flexibility, and an increased number of discrete audio channels, e.g., surround sound. With these advances in digital audio technology, consumers are finding themselves stuck in the middle of a technology gap where their digital audio sources are now present in various locations throughout the home and their music distribution systems are not able to connect these devices together. In addition, they are not able to take full advantage of the surround sound capabilities of these devices due to the limited discrete channel capabilities of their current music distribution systems.

Newer music distribution systems are coming to the market that provide digital music transmission using Ethernet networking technology. The problem with these systems is that Ethernet is a packetized, memory buffered networking standard that is very difficult to synchronize when used to play audio in multiple rooms. In addition, Ethernet has shared bandwidth for all devices connected per subnet, which limits the number of devices that can perform time-critical packet transmissions (including handshaking for all receiving devices). As a result, drop out is common and the number of audio channels is still limited to Stereo (Left and Right Channels). Ethernet audio is often compressed to

save bandwidth which requires CODECs to be implemented. Maintaining and implementing CODECs can be costly in consumer electronics which can increase the overall cost of the systems.

The invention disclosed in the instant patent application overcomes these problems by providing a method and system of delivering both intercom and music signals digitally along a bidirectional digital media bus without the need for packetization, memory buffering, or a central switching device. The invention disclosed is capable of delivering the highest quality audio and video bidirectionally throughout the home, office, or desired structure with the flexibility and scalability consumers need. In addition, the invention can be implemented with very little cost making it affordable for wide consumer adoption.

Accordingly, Applicants have amended Claims 1-12 and 14 to more clearly distinguish over the Gibb et al. and Heep et al. references. More specifically, the terms "media network station", "media transceiver", "media signals" and "media bus" have all been modified to recite the additional limitation "digital". Support for the added limitation, "digital", may be found throughout the patent specification and particularly in paragraphs [0008] and [0015].

For these reasons, Claims 1-14 as amended herein are believed to be nonobvious over Gibb et al. in view of Heep et al. Applicant respectfully requests reconsideration of the obviousness rejection based on Gibb et al. in view of Heep et al.

CONCLUSION

Claims 1-14 are believed to be in condition for allowance, and an early notice thereof is respectfully solicited. Should the Examiner determine that additional issues remain which might be resolved by a telephone conference, the Examiner is respectfully invited to contact Applicants' undersigned attorney.

The Commissioner is hereby authorized to charge any additional fee or to credit any overpayment in connection with this Amendment to Deposit Account No. 50-0881.

Respectfully Submitted,



Paul C. Oestreich
Registration Number 44,983
Attorney for Applicant
MORRISS O'BRYANT COMPAGNI, P.C.
734 East 200 South
Salt Lake City, Utah 84102
(801) 478-0071 Telephone
(801) 478-0076 Facsimile

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